

REMARKS

The application has been reviewed in light of the Office Action dated May 11, 2005. Claims 1-21 are pending, with claims 1 and 14 being in independent form.

Claims 1-3, 13 and 14 were rejected under 35 U.S.C. §102(b) as purportedly anticipated by U.S. Patent No. 4,074,268 to Olson.

Applicant has carefully considered the Examiner's comments and the cited art, and respectfully submits that independent claims 1 and 14 are patentable over the cited art, for at least the following reasons.

This application relates to control of antenna directivity. More specifically, the radiation pattern of the antenna is varied by controlling or changing electric field distribution of a transmission line connected to an antenna element.

For example, claim 1 is directed to a variable-directivity antenna comprising an omnidirectional antenna element, a transmission line connected to the antenna element, and an electric field adjusting structure provided in a boundary region between the antenna element and the transmission line and configured to change electric field distribution of the transmission line to a desired direction.

Olson is directed to an antenna for generating a rotating pattern electronically, without physically moving parts. In the antenna of Olson, a conical antenna element 10 is mounted above an aluminum baseplate 11, and an RF coaxial assembly 29 including a metal rod 30 is coupled to a lower end of the antenna element 10 for supplying RF energy to the conical antenna element 10. In addition, four vertical modulator fins 16-19 are disposed on 90° arc radials. Further, the modulator fins 16-19 include respective pairs of serially-connected pin diodes 34a and 34b, 35a and 35b, 36a and 36b, and 37a and 37b, connected across metal plates or segments of the

modulator fins.

However, as can be seen in, for example, Fig. 6 of Olsen, the modulator fins 16-19 are located away from the boundary plane between the coaxial cable 29 and the antenna element 10. In the antenna of Olson, the directivity is changed by changing the electric field distribution of the antenna element. The modulator fins of Olson cannot change the electric field distribution in the coaxial cable 29 because it is located away from the boundary between the coaxial cable 29 and the antenna element 10.

In contrast, in the claimed invention of the present application, the electric field adjusting structure is located in the boundary region between the antenna element and the transmission line, and therefore, the electric field distribution in the transmission line can be changed. Thus, the variable-directivity antenna of this application can be as small as an omnidirectional antenna.

Applicant simply does not find disclosure or suggestion in the cited art of a variable-directivity antenna comprising an omnidirectional antenna element, a transmission line connected to the antenna element, and an electric field adjusting structure provided in a boundary region between the antenna element and the transmission line and configured to change electric field distribution of the transmission line to a desired direction, as provided by independent claim 1.

Independent claim 14 is patentably distinct from the cited art for at least similar reasons.

Accordingly, for at least the above-stated reasons, Applicant respectfully submits that independent claims 1 and 14, and the claims depending therefrom, are patentable over the cited art.

Claims 4-12 and 15-21 were objected to as being dependent upon a rejected base claim, but according to the Office Action would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant appreciates the Examiner's statement in the Office Action of reasons for the indication of allowable subject matter, and submits that claims 4-12 and 15-21 recite subject matter which further supports patentability for reasons in addition to those identified in the Examiner's statement in the Office Action.

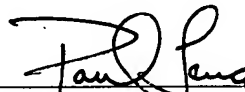
Further, since independent claims 1 and 14 are submitted to be patentable over the cited art, no changes to the form of claims 4-12 and 15-21 are believed to be necessary.

In view of the remarks hereinabove, Applicant maintains that the application is allowable, and earnestly solicits the allowance of the application.

If a petition for an additional extension of time is required to make this response timely, this paper should be considered to be such a petition. The Office is hereby authorized to charge any fees that may be required in connection with this amendment and to credit any overpayment to our Deposit Account No. 03-3125.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Respectfully submitted,



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